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Fiction as a resource in participatory design

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Abstract: In this paper we are exploring the relation between participation and fiction with the aim of investigating how fiction can be a resource for participatory design and can shed more light on the participatory value of fiction. We describe how fiction has been taken up and conceptualized in contemporary design research and argue that different strategies for applying fiction may be seen as a resource for evoking various forms of participation. Furthermore this paper present three case examples of participatory prototyping, that makes use of play or games as a way to engage participants with a particular use of *make-believe*. We discuss these cases with the purpose of identifying how participatory design can benefit from a more articulate notion of fiction.

Keywords: Fiction; Participatory prototyping; Participatory Design, Social Games.

1. Introduction

Over the last decade, increasing attention has been devoted to understanding how fiction can be a resource for design research. Consequently, a number of themes and areas have occurred as being worth exploring using fiction either as a conceptual framework, method or practice-based tactic: from the democratization of innovation and instigating of a new DIY culture (Tanenbaum et al. 2012), to the fostering of critical debate (Dunne & Raby, 2013) and encouraging people to reflect on how new technologies would eventually reconfigure everyday life and cultural rituals (Auger, 2013). Interestingly, some scholars have also argued that fiction could hold a potential for increasing user-involvement and collaboration in participatory design processes. However, with few exceptions (Blythe, 2006; Dindler & Iversen, 2007), the question of the relationship between fiction and participation remains largely unexplored.

Admitted, in participatory design, fiction artefacts such as games, role-play or story-making tools are often used as a part of a collaborative design process. But the notion of fiction is strikingly absent from the vocabulary, discourse and theorization of participatory design. Hence, the value of fiction for methods and practices central for participatory design is only vaguely understood.



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In this paper, our aim is to explore how fiction can foster participation and be utilized as a resource for Participatory Design. This entails examining how the frameworks on fiction shed light back on the fictional aspects of tools and techniques traditionally used in participatory prototyping.

We begin by describing an inexhaustible array of strategies for how fiction has been taken up and conceptualised in contemporary design research. In the second section we outline the function of playfulness in contemporary participatory design and how this relates to forms of participation. This is followed by three case examples of fiction as means to explore user experiences in participatory prototyping. All three cases involve play. Finally we turn to an analysis of fiction as a resource for participatory prototyping.

2. Strategies for a provisional framework on fiction

In our account, we have chosen to focus on how authors claim fiction to be a resource for evoking various forms of participation without them necessarily using the language and vocabulary of participatory design. Fiction has figured prominently in recent attempts to conceptually ground approaches such as ‘discursive design’ (Tharp & Tharp), ‘design fiction’ (Sterling, 2009; Bleicher, 2009; Markussen & Knutz, 2013; Knutz, Markussen & Rind, 2014) and speculative design (Dunne & Raby, 2013; Auger 2013). In this section, we will bypass the discussion of the details that constitute these fields and instead focus on how fiction is argued for generally as a resource.

In critical design, the notion of ‘**value fiction**’ (Gaver & Dunne, 1997; Dunne & Raby, 2001, p.63) has been introduced to help reversing the relationship between technology and social values in interaction design. Whereas technology is often portrayed as futuristic, social values are likely to be conservative, reflecting existing societal conditions. In reversing this relationship realistic and mundane technologies are employed to develop scenarios embodying fictional social or cultural values of how the everyday life situations could be different. A vivid example of this is Dunne & Raby’s Technological Dreams Series: No.1 (2007); a series of robots crafted as wooden modernist-like furniture. To operate the robot the user must engage intimately with it by holding it in the arms and staring concentrated at it. Here value fiction is used as a resource to provoke reflection and suggest alternative design ideals (contrary to ‘efficiency’ and ‘usability’) if robots were to be incorporated into the domestic spheres of life.

For Dunne and Raby the material manifestation of value fictions (e.g. as prototypes) is important because it amplifies the perceptual double exposure of being situated in “the here-and-now, while belonging to another yet-to-exist” (2013, p.43). When executed successfully this will evoke what Dunne & Raby (2001, p.63) – paraphrasing British novelist Martin Amis – term “complicated pleasures”, compositing multiple and perhaps even contradictory emotions. We suggest that pleasures in regard to the analysis undertaken here could be aligned to the somewhat more encompassing notion of playfulness, capable of harbouring and negotiating a host of different emotions, beliefs and wishes for the future.

In line with Dunne and Raby, Auger introduces the valuable term “**perceptual bridge**” to underline the importance of rooting speculative design proposals in people’s everyday life. If fictional design speculations become too unfamiliar or distant from reality, it will be too difficult for people to relate to them. The perceptual bridge is meant to be a guideline to designers offering ways to balance fiction and reality in various ways, as Auger explains:

“These “perceptual bridges” can then be stretched in precise ways: this might be a technical perception such as extrapolating how they think a technology is likely to develop; a psychological perception such as not breaking taste or behaviour taboos; or a cultural perception such as exploiting nostalgia or familiarity with a particular subject. In this way the speculations appear convincing, plausible or personal, whilst at the same time new or alternative.” (2012, p.180)

If a perceptual bridge is well established people can be willing to accept proposals that appear at first sight to be unfamiliar. An example of this is Auger & Loizeau’s *After Life Battery* (2009), a battery stored with energy made from the acid in the stomach of deceased family members. In this instance, Auger & Loizeau established a perceptual bridge by asking some of their colleagues how they would want their own after life battery to be used. In so doing, the speculation becomes personal and plausible.

A third way of utilizing fiction in design research is what we shall refer to as ‘**narrative anthropomorphism**’. This technique consists in attributing fictional personas and autobiographic narratives to technology or organisms in order to understand the complexity of a given ecology. Morrison (2014) exemplify this when they attribute a female character named Adrona to a military Predator unmanned aerial vehicle (UAV) - colloquially know as a ‘killer drone’. An asserted aim of such a discursive design approach is to give voice and inner emotions to a politically contentious artefact and thus enable both critical and analytical reflections. Adrona is but one in a line of similar anthropomorphised fictional personas from Morrison and associates that also counts Rumina, a wifi enhanced Bovine-machine hybrid that roam freely through a future city space (Morrison 2011). What makes Adrona and her kin of anthropomorphic-discursive constructs interesting in regards of this paper is that they enable the combination of rhetoric devises such as irony, pastiche and satire with a performative and collaborative mode of enunciation whereby a collective of different voices can act and re-act through the anthropomorphic persona to changing circumstances. This allows for sharing multiple divergent points of view in a collaborative research process.

Pastiche scenarios are introduced by Blythe & Wright (2006) as a technique for writing fictional scenarios where popular characters from well-known novels and films are used instead of traditional personas. The term ‘pastiche’ refers not only to the re-use of characters, but also – and more precisely – to the mimicking of the narration and verbal style of this character. For instance, Blythe & Wright (2006) make use of the character “Alex” from Stanley Cubrick’s *“A Clockwork Orange”* (1971) that is based on Anthony Burgess novel (1962). “Alex” is the main character of an ultra-violent gang of criminals that communicate in a language of their own. In their writing of a pastiche scenario, Blythe & Wright let “Alex” react against a new protective technology called the ‘cambadge’, a wearable lightweight webcam, which elderly people can use to inform the police if they feel unsafe or threatened in public space. By using the literary technique known as stream-of-consciousness their pastiche scenario gives us access to the inner feelings and thoughts of Alex and what victims need to be aware of when confronted with offenders of his type. Blythe and Wright contend that because pastiche scenarios present us with ‘deep characters’ that we feel as if we already know, they hold a much richer potential for increasing user-involvement than traditional scenarios where personas tend to be somewhat flat and stereotyped.

Dindler (2010) introduces the term “**fictional space as design space**”. He borrows the term *game-of-make-believe* from Kendall Walton (1991) to explain his concept of the *fictional space*. In Waltons conception of this term, *the fictional space* is constructed through the games of make-believe. Here

props can act as either *prompters* for imagination (I see a fast car, I imagine my self in that car); they also might be the *object* of imagination (I imagine that my car could be that of James Bond) or they can assist in generating *fictional truths* (the fact that all cars in Harry Potter move in their air *is true* in that particular harry-potter-world). Dindler argues that the production of a fictional space may be understood in terms of participants *practicing games of make-believe* mediated by props. In other words the *fictional space* is something that emerges when participants engage in a game-of-make-believe (e.g. defined by the design/researcher) mediated by props (e.g. framed by the design/researcher) that gives mandate to imagination (elicited or enacted by the participants)

Fictional re-framing of social innovation is introduced by Emilson as critical technique for questioning the very foundation of design for social innovation and sustainability. Following Schön, Emilson suggests that framing like the act of naming is related to the idea “of *seeing* something’s *as* something else and the concept of *metaphor*” (2015, p. 255, italics in original). Here, it is the tacit use of “generative metaphors” that enable us to grasp an unfamiliar situation by transferring familiar experiences to a different domain and thus generate a new perspective on the world (Schön in Emilson, *ibid.*). It is often through the variety of problem-setting stories people tell each other pertaining to a given situation, that the different frames and their implicit generative metaphors become visible.

Emilson suggests ‘dark and soft fiction’ as two strategies for re-framing the debate on sustainable development. The ‘soft’ predicate denotes a reconnection “with the organic part of life and humans as part of nature” (*ibid.* p, 313), whereas ‘dark’ indicates realism without false pretends of future absolutism. The societal scale, on which this approach to fiction is operating, aims at opening a ‘design space’ where narratives can inform and inspire design (*ibid.*, p.316). In this, it shares an affinity with the recasting of societal utopias as both attainable and real (Wood, 2007; Wright, 2010) and point to the role of fiction as a means of critically re-framing design work in accordance with overarching concerns and values.

In this section we have identified fiction being a resource for design in the form of i) means for increasing critical reflection and people’s engagement in speculative design proposals (Dunne & Raby 2013; Auger 2013, 2012); ii) techniques for writing narrative scenarios for enhancing multiple cross-disciplinary reflection in research teams (Morrison et al.) or for increasing user-involvement in product development (Blythe & Wright, 2006; Dindler 2010); and iii) a re-framing of large-scale socio-economic conditions for design.

The direct relevance of fiction for participatory design oriented approaches is most clearly pointed out by Blythe and Wright and Dindler. But the relationship between fiction and forms of participation in design remains largely unexplored. Following from the fiction strategies extrapolated above, we contend that each strategy displays qualities that may evoke specific forms of participation (Figure 1).

Fiction strategies	Forms of participation
<ul style="list-style-type: none"> ● Value fiction - reverse the relationship between technology and social values ● Perceptual bridge - root the unfamiliar to make speculations appear personal, plausible or convincing ● Narrative anthropomorphism - attribute fictional personas and narratives to engage complex and/or troublesome technologies ● Pastiche scenarios - explore inner felt life by imitating (well-known) fictional characters as potential users ● Fictional space as design space - make props to assist in generating fictional truths ● Fictional re-framing of social innovation - questions the foundation of design for social innovation and sustainability 	<p>Aims to provoke dialog about different emotions, beliefs and wishes for the future</p> <p>Aims to invite people to speculate on future applications of the (fictional) design proposals</p> <p>Aims to enable collaborative explorations and critical reflections, by making complex artefacts emotionally relatable (for both designers and recipients)</p> <p>Aims to give access to richer characters, which we feel we already know</p> <p>Aims to engage (invited) participants through a game-of-make-believe, mediated by props</p> <p>Aims to entice socio-political reflections and citizenry debate in an audience or group of participants</p>

Figure 1: Fiction strategies and corresponding forms of participation

3. Playfulness and games in participatory design

Almost from the beginning of the Scandinavian tradition of participatory design, participants have been invited to take part in ways of telling, making and enacting (Sanders, in Halse, Brandt, Clark & Binder, 2010, p.116-122). For example, in the UTOPIA Project Ehn and colleagues (1988) developed a design by playing approach inspired by Wittgensteinian language-games, to engage newspaper pre-press workers in sharing stories (Ehn et al. 1990).

Since the 90s design games and playfulness has been widely expanded and used as a methods of participatory prototyping; as something that can frame and stimulate design participation (Brandt, Binder & Sanders, 2013). Design researchers within the participatory design community have since developed various design game formats to accommodate different situations and aims, e.g. Brandt et al. 2008 (participatory design games); Bang 2013 (stakeholder games); Halskov & Dalsgaard, 2006 (inspiration card games) or Buur & Søndergård, 2000 (the video-card games).

Narrative elements are often used within participatory prototyping to scaffold “what-if” prompts in order to boost collective imaginings, explore, enact or disrupt possible futures through development of future user scenarios (see Kyng 1995; Binder 1999; Carroll, 2000; Brandt & Grunnet, 2000).

Playfulness and game activities thus provide what Brandt calls a “dream material” (Brandt, in Halse, Brandt, Clark & Binder, 2010, p.132) that helps participants play out and rehears various versions of the future. Brandt asserts that for such an approach to be successful, participants “have be able to see a purpose” and “must be able to influence the progression and outcome” (ibid.). Fiction, in this respect, is predominantly utilised as a means to an end. However the question of the relationship between participation and fiction as a resource that harbours its own agencies and possibilities, we argue, has remained largely unexplored.

In the following section, we will turn to three cases that all involve children or teenagers as participants in either a game-based or playful (participatory) design activity. Following Sanders and Stappers’ distinction between generative toolkit, prototype and probe (Sanders & Stappers, 2014) the projects utilize the format that may be characterised as generative toolkit (case 1), a prototype (case 2), or a probe (case 3). Here generative toolkits consist of a variety of components that stirs decisions to be made; prototypes are materially manifested ideas (e.g. physical objects, video prototypes or experience prototypes) that explore user involvement or user experiences; and probes are used as research material to understand people’s experiences or dreams.

4. Three case examples of fiction as means to explore user experiences in playful participatory prototyping

4.1 Case 1: A playful toolkit as framework for expressing needs & concerns

Hussain and Sanders (2012) describe the use of a generative co-design tool in relation to Cambodian children, who uses prosthetic legs. In order to facilitate the children’s involvement in the design process, Hussain & Sanders uses paper-doll toolkits to understand the children’s concern and needs related to the type of prosthetic leg (and garment) they find suitable to certain situations (being at home, at school, in town, at the market). Thus, the paper-doll kit offer the children an opportunity for communicating and expressing opinions about needs and concerns, through the act of play.

The paper-dolls are designed as different girl/boy-characters with different face expressions and hairstyle that the children can choose from and give self-invented names (figure 2).



Figure 2: The paper-doll kit

The research team visits the same children several times. Through the use of the paper-doll-toolkit the researchers discover (during the first visits) that it is important for the children to have at least one prosthetic leg with a naturally looking foot. In a following visit, one girl chooses a flower-patterned cover for her doll's prosthetic leg - and one boy expresses a desire to have two prosthetic legs to choose from: one with a naturally looking foot (for all situations) and another one brightly coloured (for special occasions). In that way the researchers create a fictional space that allows the children to engage themselves in a game-of-make-believe mediated by the paper-dolls. It can be argued that the paper-dolls in this case create awareness and give mandate to the imagination of multiple (future) prosthetic appearances.

4.2 Case II: A narrative as framework for prototyping museum experiences

In 2008 Dindler and his colleagues were invited to create new engaging experiences for the Kattegat Marine Centre in Denmark. Here they set up a workshop that involved a family of two adults and two children (age 9-11).

The workshop began with fictional narrative in the style of 'a letter in a bottle': A letter from the king of the sunken city of Atlantis pleading the Kattegat Marine Centre to create new "fantastic experiences". The design researchers then tasked the family to come up with ideas for new experiences using a "magic" toolkit (containing a flute, an apple, a magnifying glass, a mirror and a pen with a humming sound). In the ensuing game of-make-believe, the magnifying glass became an instrument for exploring certain species in the aquarium in detail and the pen became a tool to locate hidden treasures under the floor (figure 3).



Figure 3: Workshop with visitors: The family explores new experiences in the Kattegat Marine Centre

In this case the researchers used what they term ‘fictional inquiry’, materialized in the letter from the king of Atlantis and the content of the “magic toolbox”. The narrative-framework is concrete in that sense that it conveys interpersonal emotions, such as a plea for help and the magic properties of the toolbox objects, through which to enact the role of bringing relief to the fictive citizens of Atlantis by inventing real experiences for the Kattegat Marine Centre.

4.3 Case III: A game-world as framework for probing teenage dreams

In the project *Social Games against Crime* the long-term aim is to develop social games that can help children build resilience towards many of the personal and social problems they experience as a result of parental incarceration (Markussen & Knutz, forthcoming). With the purpose of gaining a deeper understanding of the issues involved a series of social games has been devised to probe the children, their parents and the prison-system. The example provided in this paper is one such, a pilot game workshop with 7 children (age 10-14).



Figure 4: Game workshop with 7 children age 10-14; the children make their own dreams, main characters and game elements.

The purpose of this particular workshop is to probe teenager’s wishes & dreams for the future and to explore how dreams can be played out in a fictional game world with fictional as well as non-fictional “helpers” and “opponents” in an actantial set-up. Thus, the game world offers the participants an opportunity for expressing dreams and concerns through the act of play (figure 5).

The workshop starts with the children creating an alter ego character; defining a dream or future wish; build a set of helpers to fulfil the dream. The helpers consist of either "people/characters", "things/technologies" or "abilities/skills" – and these must be crafted with the use of a toolbox with coloured clay, cotton balls and other material (figure 5).

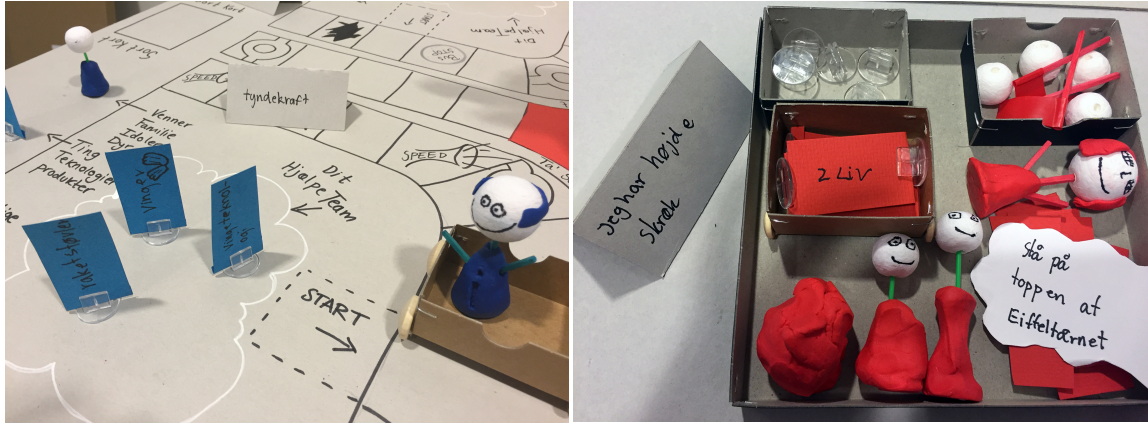


Figure 5: Gameboard and toolbox with self-created dreams, barriers, people, things and abilities

During gameplay the participants will have to negotiate barriers and formulate experiences that will either help or inhibit progression. A set of black "disruptions" cards ensures an element of chance into the gameplay. The winner is the player who manages to aggregate the most helpers in pursuit of her dream.

During the workshop the participants formulated a dream or wish and created a fictional world around it. One girl, for instance wished that she one day could "*stand on the top of the Eiffel-tower*". This participant chose her "dad", a "doctor" and a "second life" as helpers. She explained that she needed her father and a doctor to support her – and a "second life" to help her if she fell down from the Eiffel-tower. As a barrier to achieve her dream she formulated "fear of heights". Another participant filled in the wish *I would like to (be able to) fly*. The helpers in this case was "wings", "wing-technology" and "rocket boots" and her barrier was "gravity".

In this workshop fiction is used to create a game world; a city with cars, bus stops, streets and graveyards, etc. The narrative-framework, however, is not pre-conditioned but only come into being as the relations between *dreams, fictional characters, helpers and opponents* are imagined, built and placed in the game world (the city) by the participants.

5. Analysis and discussion

The central aim of this paper is to examine how the presented fiction strategies are beneficial for participation in relation to the three cases. In the following we will analyse which use of fiction is already in place in the three cases and how these are beneficial for participation. Furthermore we will discuss which fictional strategies the three cases could learn from – and use as a resource to stimulate other forms of participation.

The strategy of **value fiction** manifests itself most strongly in relation to case 1 (paper-doll toolkit) and case 3 (game based probing). Value fictions, as proposed by Dunne and Raby, seek to reverse the

relationship between technology and social values with aim of provoking dialog about different emotions, beliefs and wishes for the future.

In case 3 one participant pursued the dream of being able to fly. Technology (“wings”, “rocket-boots”, etc.) became merely practical devices to help her change and adapt to life in a world inhabited by flying people. Another participant dreams about standing on the top of the Eiffel-tower; that dream seems more “probable” than the future-wish of being able to fly. Yet, it is a complicated dream to achieve since the participant also suffers from “fear of heights”. She encompasses this in the game by reflecting on existing societal conditions (her father, and a doctor that can help her) which she combines with a fictional scenario that enables “a second life”. In allowing the participants to weave freely between “fictional” and “real” worlds, value fictions like these can be used as a resource in participatory prototyping to negotiate contradictory emotions and wishes for the future between “the here-and-now” and the “yet-to-exist”.

This also counts for case 1 (paper-doll toolkit) where the participants play with possible futures in relation to their choice of prosthesis. Here two of the participants use the paper-doll-kit to negotiate contradictory emotions about the concern and need concerning the choice between a natural-looking prosthesis and a completely different-looking leg (something else than “natural”).

The strategy of the **perceptual bridge** manifests itself most strongly in the Kattegat Marine Centre project (case 2). Here the perceptual bridge, proposed by Auger, is used to root the unfamiliar (the fiction) in some kind of familiarity (the daily lives of the users) to make it appear convincing, plausible or personal. The story of Atlantis that exists under the sea appears convincing because it relates to what the visitors are looking forward to experience, namely the underworld of the sea. In that way “the sunken city of Atlantis” can be seen as a “perceptual bridge” because the myth gives this project familiarity with the Kattegat Marine Centre. The “sunken city of Atlantis” expounds a sense of nostalgia tied to the perception of a particular subject: the underworld of the sea. Perceptual bridges are powerful fictional resources. Clearly, a narrative framing with a perceptual bridge that connected to the film JAWS by Steven Spielberg (1978) would have created completely different possibilities for engaging visitors in the Marine Centre - especially since one of its main attractions is an aquarium full of sharks.

A project that could benefit from a perceptual bridge in the further development of the project is that of case 3 (game based probing). The purpose here is to develop social games that can be played in the visiting room of a prison and that can help teenagers of imprisoned parents to build resilience towards problems related to parental incarceration. By using a perceptual bridge and by rooting the fictional narrative (of the game) in a real life context (of the prison) – connections could be made to articulate and play with social hierarchies, power and unspoken norms and rules (inside and outside the prison system) that could stimulate a fruitful conversation between prisoner and teenager concerning deprivation of freedom.

None of our three cases uses **narrative anthropomorphism** as a resource for participatory prototyping. As explained earlier narrative anthropomorphism seeks to *attribute* fictional personas and narratives to engage complex and/or troublesome technologies. Never the less we see several possibilities for how the participatory community could learn and benefit from that approach. In case 2 (the Kattegat Marine Centre) one participant uses a pen “with a humming sound” as “treasure finder” to find hidden treasures under the floor. In order for designers/researcher/participants to co-explore and understand this concept further - narrative anthropomorphism could have been applied

to give this “humming technology” a voice of its own – in the same way that “Adrona” the killer drone (Morrison et. al) was given a fictional persona and a reflective mind; this could enable critical and humorous reflection - for instance about why and how technologies could help us find “things” – through the use of humming. Anthropomorphism as a framework could in this case be applied to stimulate a multi-stakeholder exploration between the design researchers, the participants and perhaps the marine biologists at the Kattegat Marine centre.

Similar to narrative anthropomorphism, none of our three cases above makes full use of **pastiche scenario** as a fictional resource. The strategy of pastiche scenario gives the designer/researcher/participant the possibility of exploring the inner “felt-life” aspect of a user-experience by imitating fictional characters. Case 1 (the paper-doll toolkit) could benefit from this approach. This project makes use of generic paper-dolls, which might be difficult to relate to for the children. Using a pastiche as a framework could in this case be applied to give the *fictional-character-as-user* richness and depth and thereby avoid “flat” personas.

All three cases activate **fictional space as design space** as a resource for participatory prototyping. As argued by Dindler (2010) *fictional space* is something that emerges when participants engage themselves in a game-of-make-believe mediated by props that gives mandate to imagination. In case 1 (paper-doll toolkit) the researchers creates a fictional space that allow the participants to engage themselves in a game-of-make-believe mediated by the paper-dolls. Here the paper-doll kit act as *prompters* for imagination (the child imagines it self being that doll) and offers the child an opportunity for forming (and perhaps modulating) its opinion about the need concerning the choice of prosthetic leg.

In case 2 (the Kattegat Marine Centre) the fictional space for the participants emerges when the family engage themselves in the pre-conditioned narrative framework of “Atlantis”. And here it is the letter in the bottle that gives mandate to imagination by generating a *fictional truth* (the fact that the King of Atlantis needs “fantastic experiences *is true* in that particular Atlantis-world).

In case 3 (game based probing) the fictional space emerges only when teenagers engage themselves in the game-world, by populating the game with their own dreams and experiences. In so doing they expand the existing game world - “a city” - to include “a city with people, dreams, things, relations and experiences”. What mandates imagination is the self-created dreams that act as props in the form of being the *object* of imagination

The last strategy on fiction that might have a potential resource for participatory prototyping is that of **fictional reframing of social innovation** – which indicates that fictional stories can become frames (backdrop-stories) or generator - of social change.

Case 1 and case 3 both deals with a vulnerable and under-privileged end-user; that of Cambodian children using prosthetic legs and that of teenagers of imprisoned parents – and in that sense they are part of larger societal condition that needs social change. Cambodia and its children have a long history of violence and poverty and children with prosthetic legs are being stigmatized as different; they have no voice in the Cambodian society.

Children of incarcerated parents have difficulties learning in school, building social relationships, and many suffer in similar fashion (as the Cambodian children) by being marginalized. Using *Fictional reframing of social innovation* as a strategy for participatory prototyping in these two cases, allows the participants to develop a voice of their own and a critical awareness of their societal situation.

Figure 6 below provides an overview of which fictional strategies are used as a resource in relation to the three cases – as well as which fictional strategies the three cases potential could learn or benefit from and which could open up new perspectives to the design process.

Which **fiction strategies** are used as a resource to evoke participation?

Which fiction strategies could potentially have evoked participation?

	Case 1 Fiction makes it possible for the cambodian children to participate in ...	Case 2 Fiction makes it possible for the museum guests to participate in...	Case 3 Fiction makes it possible for the teenage players to participate in...
Value fiction	...playing (individually) with possible futures and explore options before a final choice is taken ...negotiating contradictory emotions concerning the choice of prosthesis <i>... direct user-involvement in the product development of the actual prosthesis</i>		... playing (collectively) with possible futures and explore how future dreams can be played out in a gameworld ... negotiating contradictory emotions concerning future dreams ... weaving freely between the "here-and-now" and the "yet-to-exist"
Perceptual bridge		... rooting a fictional narrative (the city of Atlantis) in a real life context (the museum)	<i>... rooting the fictional narrative (of the game) in a real life context (of the prison)</i>
Narrative anthropomorphism		<i>... multi-stakeholder collaboration, and humorous reflection, for instance about why and how technologies could help us find "things" through the use of humming</i>	
Pastiche scenarios	<i>...engaging with 'deep characters' for instance with fictional characters that the children feel they already know</i>		
Fictional space as design space	... imagining multiple prosthetic appearances ... forming and modulating individual opinions about the need and choice of prosthesis	... imagining and prototyping actual museums experiences ... proposing and evaluating future scenarios in collaboration with the designers	... externalizing and materializing future dreams ... co-designing by imagining and building game pieces and game content
Fictional re-framing of social innovation	... developing a shared experience of personal choice ... developing a voice of their own		... developing a critical awareness and the ability to generate new perspectives on their socio-political world

Figure 6: Utilized versus potential fiction strategies to evoke participation across the three cases

Through our case analysis we have identified at least five areas – and notions of fiction – that could increase participatory involvement. We are proposing that fiction may be used as a resource in participatory prototyping to:

- gain more direct user-involvement in product development;
- stimulate critical and humorous reflection;
- increase multi-stakeholder collaboration;
- engage with 'deep characters';
- root the unfamiliar in a real life context.

By exploring these areas we might be able to further craft fiction as modes of engagement that encourage participation, which in turn could open up new perspectives on the design and development process.

6. Conclusion

In this paper, we have explored the hypothesis that fiction holds value as a resource in participatory design, in excess of its current applications. With regards to the rich existing tradition of using playfulness and games as part of participatory prototyping, we have shown how the staging of make-believe scenarios, by different modes of engagement (e.g. generative tools, prototypes, probes), has elucidated the participatory potential of crafting a fictional space as design space. However, by drawing out a select number of examples of fiction strategies originating in areas of design research adjacent to participatory design, we demonstrate that (1) fiction holds a wider potential to encourage participation and (2) that the current use practices do not exhaust what games-of-make-believe might contribute to participatory prototyping. We have argued that (3) fiction strategies open up new perspectives on participation in three existing cases. Future work will be needed to investigate in greater detail how fiction, with regards to games and play, may strengthen social relations and social growth.

7. References

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